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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,229	11/25/2003	Helena D. O'Shea	010535B1	6695
23696 7590 01/29/2007 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121			EXAMINER WILLIAMS, LAWRENCE B	
			ART UNIT	PAPER NUMBER
			2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/29/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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## Office Action Summary

Application No.

10/722,229

Applicant(s)

O'SHEA, HELENA D.

Examiner

Lawrence B. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because applicant uses form and legal phraseology (i.e., said demodulator) in line 2. Correction is required. See MPEP § 608.01(b).
2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities: Applicant has failed to provide a Description of Drawings. Applicant is reminded of content and format of specification.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 1-4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites the limitation “a symbol demodulator, for demodulating said amplified modulated carrier into in-phase and quadrature-phase symbol representations having DC offset components”. Applicant does not disclose a symbol demodulator for the purpose as recited above. Applicant discloses “the mixer (64) includes a multiplier (66) and oscillator (68) arranged to **produce quadrature output signals** on lines 70 and 72” (pg. 2, paragraph [0005], lines 3-4). Applicant’s disclosure of a symbol demodulator (Fig. 2) is a symbol demodulator arranged to receive I and Q component signals in which the DC offset has been removed (pg. 4, lines 1-3, paragraph [0015], lines 3-6).

Claims 2-4 are rejected based on their dependency upon rejected claim 1.

6. Claims 5-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 5 recites the limitation “a symbol demodulator, for demodulating said amplified modulated carrier into in-phase and quadrature-phase symbol representations having DC offset components”. Applicant does not disclose a symbol demodulator for the purpose as recited above. Applicant discloses, “the mixer (64) includes a multiplier (66) and oscillator (68)

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arranged to **produce quadrature output signals** on lines 70 and 72 (pg. 2, paragraph [0005], lines 3-4). Applicant's disclosure of a symbol demodulator (Fig. 2) is a symbol demodulator arranged to receive I and Q component signals in which the DC offset has been removed (pg. 4, lines 1-3, paragraph [0015], lines 3-6).

Claims 6-9 are rejected based on their dependency upon rejected claim 5.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

8. Claim 4 is rejected under 35 U.S.C. 112, second paragraph. Claim 4 recites the limitation "said low pass filter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 10-20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jakobsson (US 6,7557,340 B1).

(1) With regard to claim 10, Jakobsson discloses in Fig. 2, a wireless communications

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system, a receiver (200) comprising: a demodulator (elements, 220, 222, 233, 224), having an output with a DC component (col. 3, line 60-col. 2, line 3); and a subtractor (element 250) for receiving said output and subtracting a time-average of said DC component therefrom. The preloaded filter (250) as disclosed by Jakobsson performs the same function as applicant's subtractor. An average DC offset using a predetermined number of symbols (col. 4, lines 36-38) is calculated. The predetermined number of symbols would inherently have a time period, thus yielding a time-average of the DC component. Jakobsson also discloses the filter (250) using the calculated average DC offset to effectively cancel out (subtract) the DC offset from the output signal (col. 4, lines 47-56).

(2) With regard to claim 11, Jakobsson also discloses the receiver of claim 10 further comprising a DC averager (248) for receiving said output, producing a time-average of said DC component over a predetermined time, and providing said time-average to an input of said subtractor (250). Again as noted above, Jakobsson discloses an average DC offset using a predetermined number of symbols (col. 4, lines 36-46) is calculated. The predetermined number of symbols would inherently have a time period, thus the yielding a time-average of the DC component.

(3) With regard to claim 12, Jakobsson also discloses in Fig. 2, the receiver of claim 10 further comprising a low pass filter (230) for receiving said output (Though Jakobsson does not explicitly teach an estimator, such a device would be inherent to detect/estimate the DC offset before an average DC offset could be calculated ); and an averager (248) for receiving said estimate to produce said time-average of said DC component (col. 4, lines 36-46).

(4) With regard to claim 13, Jakobsson also discloses in Fig. 2, the receiver of claim 10 wherein said output of said demodulator comprises an in-phase output (226) and a quadrature-phase output (228).

(5) With regard to claim 14, Though Jakobsson is silent on the subject of a symbol decoder, he discloses the preferred method and receiver used in a TDMA communications systems. It is well known in the art that a TDMA burst or frame includes 1250 symbols and thus the demodulator (Fig. 2, 252) would inherently comprise a symbol decoder for decoding the symbols.

(6) With regard to claim 15, Jakobsson also discloses in Fig(s). 2, 3, a method comprising receiving a demodulator (Fig. 2, elements, 220, 222, 233, 224) output signal; subtracting (element 250) a time-average of DC component from the demodulator output signal to obtain a resultant signal; and transmitting the resultant signal to a demodulator. The preloaded filter (250) as disclosed by Jakobsson performs the same function as applicant's subtractor. An average DC offset using a predetermined number of symbols (col. 4, lines 36-38) is calculated. The predetermined number of symbols would inherently have a time period, thus yielding a time-average of the DC component. Jakobsson also discloses the filter (250) using the calculated average DC offset to effectively cancel out (subtract) the DC offset from the output signal (col. 4, lines 47-56); and transmitting the resultant signal to a symbol decoder (Fig.2, element 252). Though Jakobsson is silent on the subject of a symbol decoder, he discloses the preferred method and receiver used in a TDMA communications systems. It is well known in the art that a TDMA burst or frame includes 1250 symbols and thus the demodulator (Fig. 2, 252) would inherently comprise a symbol decoder for decoding of the symbols.

(7) With regard to claim 16, Jakobsson also discloses the method of claim 15 further comprising time averaging a DC component of the demodulator output signal to obtain the time-averaged DC component (col. 4, lines 24-38).

(8) With regard to claim 17, Jakobsson also discloses in Fig. 2, the method of claim 15 wherein said receiving a demodulator output signal comprises receiving an in-phase output and a quadrature-phase output of the demodulator.

(9) With regard to claim 18, Jakobsson also discloses in Fig(s) 2, 3, a method for compensating DC offsets in a wireless communications system comprising receiving a demodulator output signal having a DC offset (col. 3, line 60 - col. 4, line 3); determining a time-average of said DC offset over a predetermined time; subtracting said time-average of said DC offset from said demodulator output signal to obtain a resultant signal. The preloaded filter (250) as disclosed by Jakobsson performs the same function as applicant's subtractor. An average DC offset using a predetermined number of symbols (col. 4, lines 36-38) is calculated. The predetermined number of symbols would inherently have a predetermined time period, thus yielding a time-average of the DC component. Jakobsson also discloses the filter (250) using the calculated average DC offset to effectively cancel out (subtract) the DC offset from the output signal (col. 4, lines 47-56), and transmitting the resultant signal to a symbol decoder (Fig. 2, element 252). Though Jakobsson is silent on the subject of a symbol decoder, he discloses the preferred method and receiver used in a TDMA communications systems. It is well known in the art that a TDMA burst or frame includes 1250 symbols and thus the demodulator (Fig. 2, 252) would inherently comprise a symbol decoder to decode the symbols.



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(10) With regard to claim 19, Jakobsson also discloses in Fig. 2, the method of claim 18 wherein said receiving a demodulator output signal comprises receiving an in-phase output (226) and a quadrature-phase output (228) of the demodulator.

(11) With regard to claim 20, the method of claim 18 wherein said determining a time-average of said DC offset comprises low-pass filtering (230, col. 4, lines 7-15) said demodulator output signal; estimating (inherent in order to average) a DC component in said low-pass filtered demodulator output signal, and averaging said estimated DC component over a predetermined time (col. 4, lines 23-46).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Jensen et al. discloses in US 2003/0202618 A1 Radio Receiver Having Direct DC Offset Compensation.

b.) Rahman discloses in US 2006/0223457 A1 System And Method For DC Offset Correction In Transmit Baseband.

c.) Takagi discloses in US 2002/0049075 A1 Multiband Portable Radio Terminal.

d.) Chiu discloses in US Patent 4,873,702 Method And apparatus For DC Restoration In Digital Receivers.

e.) Allott et al. discloses in US 2002/0160738 B1 DC Offset Correction For Use In A Direct-Conversion Radio Architecture.

f.) Borth et al. discloses in US Patent 4,887,050 Frequency Control Apparatus And Method For A Digital Radio Receiver.

g.) Honkasalo (nee Zhu) et al. discloses in US Patent 5,754,595 Demodulated Radio Signals.

h.) Baker et al. discloses in US Patent 5,724,653 Radio Receiver With DC Offset Correction Circuit.

i.) Neustadt discloses in US Patent 5,663,988 Method And Circuit Arrangement For Offset Correction In A TDMA Radio Receiver.

j.) Dedic et al. discloses in US Patent 5,442,655 DC Cancellation And Restoration In Receiving Apparatus.

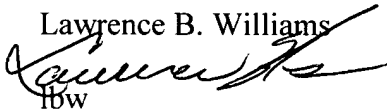
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

A handwritten signature in black ink, appearing to read 'Lawrence B. Williams', with a stylized flourish at the end.

lbw

January 20, 2007